

## CLAIMS

1. An active noise control (ANC) system comprising:  
a source unit for generating regenerative signals;  
an ANC unit for processing signals so as to actively cancel noise;  
5 sensors for detecting information on the inside and outside of a  
vehicle;  
a vehicle interior voice discriminating unit for discriminating  
voice of conversation in the interior of the vehicle;  
an amplifier for amplifying the signals processed by said ANC  
10 unit; and  
a reproducing transducer for reproducing the signals amplified  
by said amplifier.

2. The active noise control system as described in Claim 1  
15 wherein said ANC unit is structured so as to change processing effect  
thereof on noise in a voice band according to control signals supplied  
from said vehicle interior voice discriminating unit.

3. The active noise control system as described in Claim 2  
20 wherein said ANC unit comprises:

a first filter for allowing the output signals outside of the voice  
band supplied from said sensors to go through;  
a first adaptive filter for eliminating noises outside of the voice  
band from the output of said first filter;  
25 a second filter for allowing the output signals within the voice  
band supplied from said sensors to go through;  
a switching unit for switching operations so as to select one of  
allowing passage of all the output from said second filter without

filtration when voice is present in said vehicle interior and allowing the output from said second filter to pass through a second adaptive filter for eliminating noises within the voice band when no voice is present in said vehicle interior; and

5           a mixer for mixing the output from said first adaptive filter and the output from said switching unit.

4. The active noise control system as described in Claim 2 wherein said ANC unit comprises:

10           a filter for allowing the output signals outside of the voice band supplied from said sensors;

            a switching unit for switching so as to select one of allowing passage of all the output signals from said sensors without filtration when voice is present in said vehicle interior and allowing the output  
15           signals to pass through said filter when no voice is present in said vehicle interior.

5. The active noise control system as described in Claim 3 wherein factors of said first and second adaptive filters can be  
20           arbitrarily set by switching so as to be continuously updated and fixed.

6. The active noise control system as described in Claim 1 wherein said sensors include one of a type for detecting vehicle interior sounds, engine sound, and sounds and vibrations outside of the running  
25           vehicle, a type for detecting information on factors affecting the acoustic space of the vehicle such as the number of passengers and the location thereof and a type for detecting operating conditions of the vehicle such as engine speeds and running speeds thereof.

7. The active noise control system as described in Claim 6 wherein said sensors for detecting the location of passengers are arranged in predetermined positions and the number of sensors are such that generated voice can be located.

8. The active noise control system as described in Claim 7 wherein said sensors for detecting the location of passengers are microphones placed in the vicinity of the heads of passengers.

9. The active noise control system as described in Claim 1 wherein said vehicle interior voice discriminating unit constructs a determining algorithm using one of relation among time at which signals are supplied from said sensors, information on passengers, correlation between the signals from said sensors and characteristics of frequency components and amplitudes of the signals from said sensors.

10. The active noise control system as described in Claim 1 wherein said reproducing transducer is a speaker.

11. The active noise control system as described in Claim 10 wherein said system is structured so that a headrest carries the speaker.

12. The active noise control system as described in Claim 1 wherein said reproducing transducer is a bone-conduction actuator.

13. The active noise control system as described in Claim 3

14. The active noise control system as described in Claim 13  
5 wherein said fail-safe unit also operates when the signals from said  
source unit are in a higher level.